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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/716,877      | 11/20/2003  | Hee Kyung Ju         | 912-42              | 5636             |

23117 7590 06/16/2006

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| EXAMINER |
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RAZA, SAIRA B

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| ART UNIT | PAPER NUMBER |
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1711

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/716,877

Applicant(s)

JU ET AL.

Examiner

Saira Raza

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13, 17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) 1-9, 13, 17 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The rejections have been maintained and reflect the amended claims.

#### *Claim Rejections - 35 USC § 103*

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. (US Patent No. 3,871,570) in combination with Onouchi et al. (US Patent No. 4,898,781).

4. From a Prior Action:

5. Fukushima teaches a process for preparing microcapsules, wherein core substance (active component) is encapsulated (Column:Lines::1:40-47). Specifically, the core substance may be either solid or liquid and either soluble or insoluble in the solvent utilized, one example includes an enzyme in a methylene chloride solvent (3:9-21, 2:38-59). The process comprising: dissolving a polymeric wall material in a solvent with a core substance, adding a vehicle (polyhydric alcohol or polyol), emulsifying the dispersion and obtaining microcapsules, evaporating the solvent, washing off the polyhydric alcohols, and obtaining hard polymer microcapsules (2:19-35, 3:25-67, 4:9-42, Example 1). Fukushima fails to teach the formation of a first solution containing one active component dissolved in a polyol/solvent solution, and subsequent addition to first solution a polymer solution (containing a wall-component polymer).

6. Hence attention is directed towards the Onouchi reference, which discloses water-soluble microcapsules containing an enzyme as a core material. Specifically, Onouchi discloses that the enzymes are not independently encapsulated; rather they can be dispersed in a water-containing polyhydroxy compound, such as a polyol. Concrete examples of the polyhydroxy compound include low molecular weight polyethylene-polypropylene glycol. Onouchi teaches that the addition of water-containing polyhydroxy compound to dissolve or disperse the enzyme acts as a supporting substance

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for ensuring perfect coating of the microcapsules and enhances the stability of enzyme during storage (2:28-37, 4:1-5, 4:30-52).

7. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to first dissolve the core substance in a polyol solution and subsequently add a polymeric wall material solution, in the microcapsule formation process of Fukushima in combination with the teachings of Onouchi in order to enhance the stability of the core substance during storage. Furthermore, changes in the sequence of process steps, specifically reversing the order of the prior art process steps has generally been recognized as not being sufficient to patentably distinguish over the prior art. *Ex parte Rubin*, 128 USPQ 440 (Bd. App. 1959) Additionally, the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946). In effect, the applicants specification does not provide any new or unexpected results due to the order of completion of the process steps.
8. In reference to the newly added limitation regarding a hydrophobic wall-component polymer, it is noted that Fukushima discloses that polystyrene is an example of a polymeric wall material, wherein polystyrene is a hydrophobic polymer.
9. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima in combination with Onouchi as applied to claim 10 above, and further in view of Pasin (US Patent No. 3,664,963).

10. From a Prior Action:

11. Fukushima and Onouchi fail to teach the re-dispersing of the dispersed enzyme/polyol solution into a polymer solution containing a high molecular weight polyol. Hence, attention is directed towards the Pasin reference, which discloses a process for encapsulating an active material in

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a shell composition. Specifically, Pasin teaches that polyglycols with a high molecular weight (about 2,000) are suitable for desolventizing capsule compositions in which an organic solvent is employed. Pasin discloses that a preferred polyglycol is polyethylene glycol (2:48-62,4:44-63).

12. Fukushima and Onouchi both teach the encapsulation of core enzymatic substances such as hydrolases (Fukushima 3:19-22, Onouchi 4:5-29).

13. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to first dissolve a core enzymatic substance in a low molecular weight polyol solution and subsequently add a polymeric solution containing a high molecular weight polyol, in the microcapsule formation process of Fukushima in combination with the teachings of Onouchi, and further in view of the teachings of Pasin in order to readily desolventize the organic solvent utilized to form the microcapsule.

14. In reference to the newly added limitations regarding the molecular weight of both the low and high molecular weight polyols, it is noted that the low molecular weight polyol of Onouchi has an average molecular weight of 1,000 (col.14, lines30-31), and the high molecular weight polyol of Pasin has molecular weight of 2,000. Hence the combination of the references, as discussed above, meets the claimed limitations.

### ***Response to Arguments***

15. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., both an oil- and/or water-soluble active component, and the functions of the low and high molecular weight polyols) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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16. In response to applicant's argument that the polymer of Onouchi is water-soluble and thus a cross-linking process is needed to prepare the microcapsules, it is noted that in the combination of Fukushima and Onouchi, as discussed above, the teaching of Onouchi to first dissolve the core substance in a polyol solution is used to modify the invention of Fukushima. Examiner does not make the rejection on the grounds that the wall-forming polymer of Onouchi should be used to modify the invention of Fukushima.

### ***Conclusion***

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

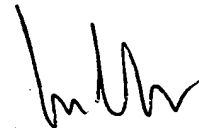
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saira Raza whose telephone number is (571) 272-3553. The examiner can normally be reached on Monday-Friday from 9am-5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**James J. Seidleck**  
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